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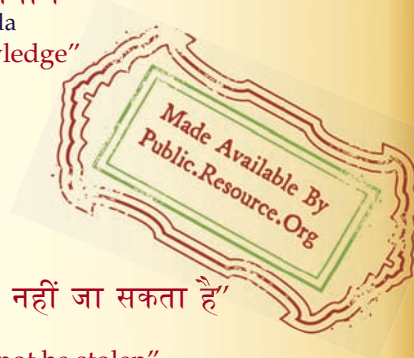
IS 10877 (1984): Dimensions for Moulds for Cast Resin Based Indoor Terminations for Cables for Working Voltages from 3.3 kV Up to and Including 11 kV [ETD 9: Power Cables]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

DIMENSIONS FOR MOULDS FOR CAST RESIN BASED INDOOR TERMINATIONS FOR CABLES FOR WORKING VOLTAGES FROM 3.3 kV UP TO AND INCLUDING 11 kV

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NEW DELHI 110002

Indian Standard

DIMENSIONS FOR MOULDS FOR CAST RESIN BASED INDOOR TERMINATIONS FOR CABLES FOR WORKING VOLTAGES FROM 3.3 kV UP TO AND INCLUDING 11 kV

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Indian Standard

DIMENSIONS FOR MOULDS FOR CAST RESIN BASED INDOOR TERMINATIONS FOR CABLES FOR WORKING VOLTAGES FROM 3.3 kV UP TO AND INCLUDING 11 kV

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 21 March 1984, after the draft finalized by the Power Cables Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 Development of cast resin based terminations has been undertaken by several manufacturers in the country. A large variety of systems exist utilizing different methods for jointing/termination and using different types of resins, fillers and hardeners. In order to ensure adequate space for the making of termination on cables, it is necessary that the moulds should have definite minimum dimensions so as to ensure adequate clearances and proper bending of the cable cores without undue strain.

0.3 This standard has been prepared to rationalize types and sizes of moulds for cast resin indoor terminations suitable for thermoplastic and paper insulated cables.

0.4 The object of this standard is to specify envelope dimensions of indoor termination casting moulds to ensure sufficient inner space for maintaining adequate clearances. Only vital minimum dimensions are shown in the drawing. The manufacturer is free to adopt all other dimensions, as also the general shape of the mould.

0.5 The standard does not cover the actual terminating methods or the specifications of materials and components, such as plastic moulds and casting resin system which are used in terminations.

0.6 As far as possible, various sizes of cables are covered under a single type of mould. Tables 3 and 4 regarding selection of moulds are only for guidance of users.

0.7 The minimum thickness of moulds has not been specified since it is possible to adopt ribbed construction to get more strength of the mould. Also, the strength to the joint is given by the cast resin rather than the mould.

0.8 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard specifies dimensions for moulds for cast resin based indoor terminations for following types of cables:

- a) PVC insulated, unscreened, voltage grade from 3.3 kV, up to and including 6.6 kV [*see* IS : 1554 (Part 2)-1981†]; and
- b) Paper insulated, belted type voltage grade from 3.3 kV, up to and including 11 kV grade (*see* IS : 692-1973‡).

1.2 This standard also covers the marking to be given and makes a reference to the materials for such moulds.

1.3 In this standard following two types of moulds have been covered depending on whether earthing connection has been taken inside the mould or not:

- Type A This type of mould is suitable for PVC cable terminations. In this type of mould, the earthing connection is taken inside the mould.
- Type B This type of mould is suitable for paper insulated cable terminations. This mould is fixed on the lead sheath of paper insulated cable. In this type of mould, the earthing connection is taken outside the mould.

2. MATERIAL

2.1 Plastic Mould — Plastic mould shall comprise of two halves formed from plastic sheet, such as polystyrene and polyethylene or any other suitable plastic material.

2.1.1 The mould shall have a smooth profile and shall be capable of sustaining the weight of the cast resin compound without deformation, up to the maximum temperature developed during exothermic reaction.

*Rules for rounding off numerical values (*revised*).

†Specification for PVC insulated (heavy duty) electric cables: Part 2 For working voltages from 3.3 kV up to and including 11 kV (*first revision*).

‡Specification for paper insulated lead sheathed cables for electricity supply (*second revision*).

3. DIMENSIONS

3.1 Type A Moulds

3.1.1 The minimum dimension of the moulds shall be as given in Fig. 1 and Table 1.

3.1.2 Provision for taking out the armour connection for earthing is shown with dotted lines in Fig. 1, which may be located at any convenient position depending on the method of terminating the armour. The earthing can also be taken out from top or bottom of the mould.

3.1.3 The moulds may, at the option of the manufacturer, be provided with an additional step at the cable entry for terminating small sizes of cables.

3.2 Type B Moulds

3.2.1 The minimum dimensions of the moulds shall be as given in Fig. 2 and Table 2.

3.2.2 The mould may, at the option of the manufacturer, be provided with an additional step at the cable entry for terminating small sizes of cables.

4. SELECTION

4.1 For each mould designation in Type A, Table 3 and in Type B, Table 4 gives the types and sizes of the cables for which it is suited. The user may select the mould suitable for his application from these tables.

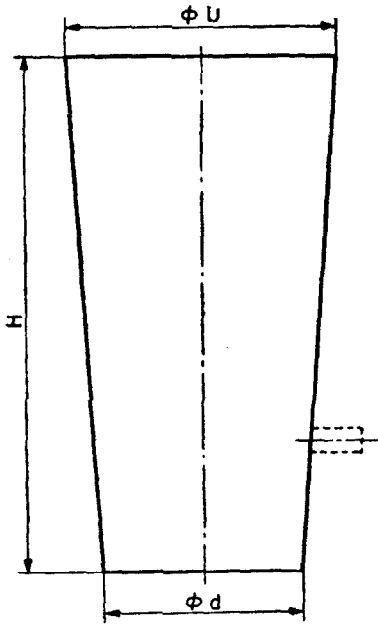
5. MARKING

5.1 Each half of the mould shall be marked by embossing or indenting the following:

- a) Manufacturer's name and/or trade name, and
- b) Mould designation (*see* Tables 1 and 2).

5.1.1 The moulds may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provision of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.



D = Mould top portion dia,
 d = Mould bottom portion dia, and
 H = Height of the mould.

FIG. 1 TYPE A MOULD

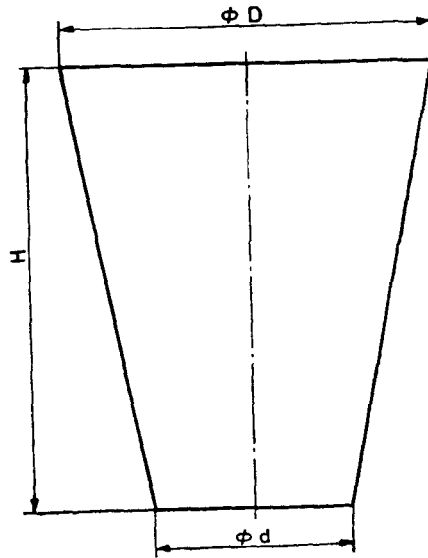


FIG. 2 TYPE B MOULD

TABLE 1 DIMENSIONS OF TYPE A MOULDS

(Clause 3.1.1)

MOULD DESIGNATION	MINIMUM DIMENSIONS, mm		
	d	D	H
(1)	(2)	(3)	(4)
EH 1	35	55	115
EH 2	45	65	130
EH 3	55	75	145
EH 4	65	85	160
EH 5	75	95	175
EH 6	85	105	190
EH 7	95	115	205
EH 8	105	125	220

TABLE 2 DIMENSIONS OF TYPE B MOULDS

(Clause 3.2.1)

MOULD DESIGNATION	MINIMUM DIMENSIONS, mm		
	d	D	H
(1)	(2)	(3)	(4)
EHH 1	35	55	80
EHH 2	45	65	80
EHH 3	55	75	80
EHH 4	65	85	80
EHH 5	55	105	125
EHH 6	65	125	145
EHH 7	80	145	155
EHH 8	90	160	170

TABLE 3 SELECTION OF TYPE A MOULDS(*Clauses 0.6 and 4.1*)

MOULD DESIGNATION	CABLE SIZE, mm ² (3.3 AND 6.6 kV)	
	Single Core	Three Core
(1)	(2)	(3)
EH 1	25, 35, 50, 70, 95, 120	—
EH 2	150, 185, 240, 300	—
EH 3	400, 500	25, 35, 50
EH 4	630, 800, 1 000	70, 95
EH 5	—	120, 150, 185
EH 6	—	240, 300
EH 7	—	400
EH 8	—	500

TABLE 4 SELECTION OF TYPE B MOULDS(*Clauses 0.6 and 4.1*)

MOULD DESIGNATION	CABLE SIZE, mm ²		
	3.3 and 6.6 kV (Belted Type)		11 kV (Belted Type)
	Single core	Three core	Three Core
(1)	(2)	(3)	(4)
EHH 1	25, 35, 50, 70, 95, 120	—	—
EHH 2	150, 185, 240, 300	—	—
EHH 3	400, 500, 630	—	—
EHH 4	800, 1 000	—	—
EHH 5	—	25, 35, 50	25, 35, 50
EHH 6	—	70, 95, 120, 150	70, 95, 120, 150
EHH 7	—	185, 240	185, 240
EHH 8	—	300, 400	300, 400

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INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	1 N = 1 kg.m/s ²
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m ²
Frequency	hertz	Hz	1 Hz = 1 c/s (s ⁻¹)
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m ²